Space Weather Forecast

Issued on Thursday, 03 March 2022 at 01:15 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Minor Geomagnetic Storm likely early day 2 (4th). Increasing Chance of Minor Radio Blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Moderate, with occasional common class flares and one moderate flare at 02/1739 UTC. The unlikely source of this flare was a relatively small and simple region in the northeast, which has subsequently exhibited decay. Meanwhile, there has been notable growth of two regions in the southeast, one of which has been the source for many of the common class flares. There also remains two mature and stable spots in the northwest quadrant.
No Earth directed CMEs (coronal mass ejections) were observed in the available imagery.

Solar Wind / Geomagnetic Activity: The solar wind speed was slightly elevated, but gradually declined from around 500 km/s to around 420 Km/s through the period. The total magnetic field of the wind was weak, with no significant deflections in the important north-south component. Geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Low. However, there is a chance of increasing to Moderate levels at times. This risk increases slightly through the period as potential returning regions transit round the east horizon onto the Earth facing disc.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs currently feature in the forecast. Near background solar winds and Quiet geomagnetic activity is expected initially. However, late on day 1 (3rd) into day 2 (4th) solar winds are expected to become elevated, due to the arrival of a coronal hole fast wind, and remain elevated for the rest of the period. Geomagnetic activity is expected to become Quiet to Unsettled with occasional Active intervals. There is a chance of Minor Geomagnetic Storming, most likely early on day 2 (4th).

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	40	60	30	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	25	30	30	40
Very Active	R3 to R5 X	No	2	5	5	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	3	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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